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ENERGY FOCUS

With Higher Electricity Costs, Can Solar Power Help?

By Adam Wasch, Energy Outreach Consultant at CCHRC

This is the first of a series of columns exploring how solar energy can be used at home to reduce your energy costs.

Science guys and green types have been using miniature solar panels to animate Legos and twirl dream catchers for years, but has solar power technology advanced to the point where an average homeowner can save money. Is solar power practical?

CCHRC is testing four large photovoltaic (PV) solar panels on our property near the university. These panels were made possible by BP's generosity and, in theory, contribute about half of our building's electricity needs. CCHRC also uses solar energy to heat water and, through strategically placed windows that are designed to harvest the sun's warmth, so-called passive solar technology.

Basically, the economics of solar energy depend on how long it takes to recoup installation costs. Whole-house solar power systems take many years to produce a return on investment, but smaller systems begin paying you back much faster. The Golden Valley Electric Association (GVEA) and government incentives significantly reduce installation costs and further speed the payback.

"Strictly speaking, an economic argument alone is not going to persuade most people to adopt solar technologies, especially if you're talking about photovoltaic panels to make electricity," says CCHRC Product Testing Director Colin Craven. "It's about becoming part of the solution to our long-term energy needs and encouraging others to do the same. The payback on solar-generated power is long-term, but there's more you can do with solar than generate electricity. For example, there're solar thermal and passive solar, which are more attractive financially."

Solar thermal systems supplement heat from traditional energy sources by transmitting the sun's heat through exchange pipes to your water supply. Heating water is among a home's top energy draws, so going solar can make a big difference. In the Lower 48, a solar thermal system reduces heating bills 50 percent to 80 percent, according to the U.S. Department of Energy. CCHRC is studying the savings in our climate. Systems cost $2,500 to $4,500, but up to $2,000 can be refunded to you in the form of a federal tax credit. Additional state incentives are available. If you're building new construction and include solar in the cost of your mortgage, you'll realize monthly savings immediately.

Thermal panels are smaller than PV panels and more efficient because thermal panels can use more of the sun's energy. Passive thermal systems store collected heat in specially constructed walls or masonry, whereas active systems such as those you would add to existing homes transmit heat directly to a water tank. Either way, your energy bill goes down, you're protected against rising energy costs, and your home becomes more environmentally friendly.

For more information about tax credits and other incentives, go online to the Database of State Incentives for Renewables & Efficiency at http://www.dsireusa.org and check out GVEA's SNAP Program at http://www.gvea.com/alternative-energy/snap.

Next week, we will discuss incorporating passive solar design into your home's features and window choices. In the meantime, consider taking a guided tour of CCHRC's building and how we use solar power.

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